Volume 7
Number 81 *Experiment in beef production.*

Article 1

August 2017

# Experiment in beef production.

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BULLETIN 81 APRIL 1905

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IOWA STATE COLLEGE
OF AGRICULTURE AND MECHANIC ARTS
AMES, IOWA

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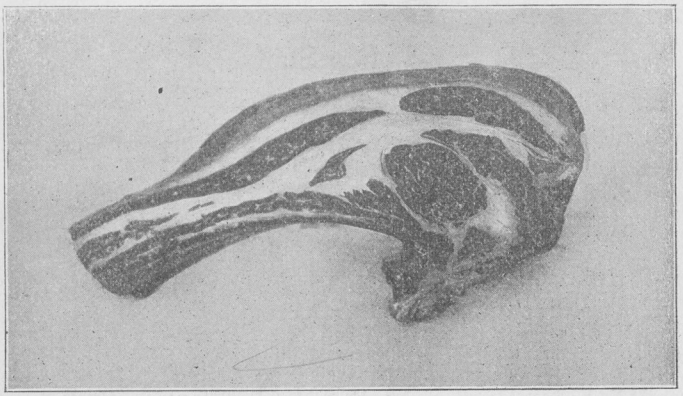

## Experiment in Beef Production

1. Feeding Beef vs. Dairy Type.
2. The Slaughter Test.
2. The Meat Demonstration.

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THE AMES TIMES
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# Experiment in Beef Production.

## BEEF TYPE VERSUS DAIRY TYPE.

1. Feeding Beef vs. Dairy Type.
2. The Slaughter Test.
3. The Meat Demonstration.

W. J. KENNEDY
WAYNE DINSMORE
W. J. RUTHERFORD
W. W. SMITH

This bulletin gives the result of a year's feeding test with steers of beef and dairy type; it also includes the slaughter test on the same animals, conducted in January, 1904, and a meat demonstration by Mr. John Gosling. While the results of the slaughter test are properly a part of the experiment, it has been deemed advisable to treat them somewhat distinctly. The data bearing on the differences in feeding and gaining capacity are therefore treated in the first part of the bulletin, and the results of the slaughter test, with Mr. Gosling's explanations, in the latter part. The feeding questions under investigation were as follows:

Which type of steer makes the greater gains from pounds of food consumed?

In the gains made, what differences exist between the two types as to distribution of such gains over the body?

Which type of steer yields the greater profit to the feeder?

A brief explanation of what is meant by beef and dairy type is here given:

Beef Type—An animal of low set, compact, blocky general appearance, displaying vigor in the general bearing and carriage, without any indication of restlessness or nervousness. In form, short and broad in the head, broad in muzzle, with large nostrils and large mouth; the neck short, thick, and smoothly blended with the shoulders; breast full and wide; shoulders, broad yet compact at top, and smoothly covered with muscle on sides; back and loin broad, with fore-ribs arching wide to give width at the crops; body deep, wide on floor of chest, and with capacious middle, indicative of generous feeding capacity; rump long, wide, and carrying width of body out uniformly to tail; twist, deep and plump; thighs wide as viewed from the side, and thick as viewed from the rear. Bone in head and limbs reasonably fine, and free from meatiness or full-

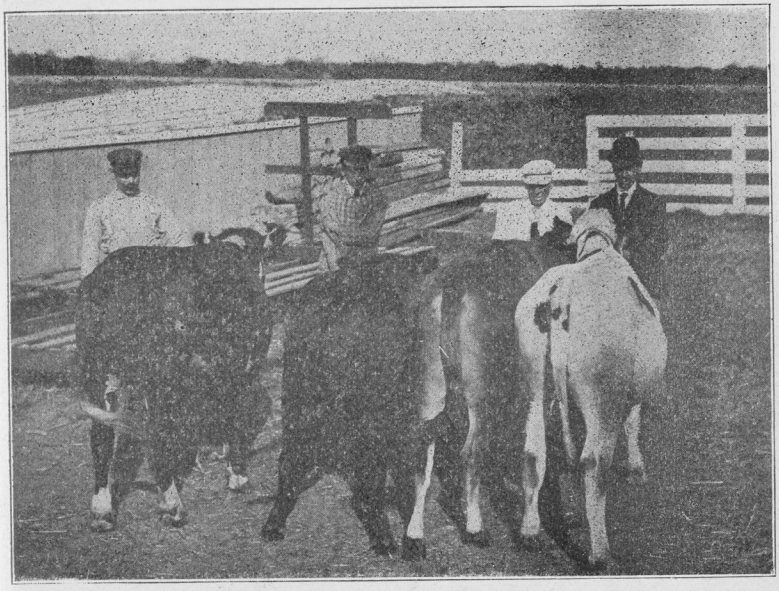
ness below the eyes; skin, soft and pliable; hair, soft and silky. Natural flesh (the thick, muscular covering over back, ribs, loin and hindquarters, and upon which the value of the finished carcass ultimately depends), should be present in abundant amount; and with all this, the disposition to eat and sleep all the time is of the greatest importance.

Dairy Type—An animal usually a trifle high from the ground, rather unsymmetrical because of light hindquarters, and of rather a nervous disposition, but very vigorous. In form, of fair width in forehead, but long in face; nostrils, large; muzzle, wide; mouth, large; neck, rather long, not smoothly and compactly joined to shoulder. Shoulders rather bare, narrow at top, practically sharp at withers; body deep, but lacking in width on top, due to deficient spring of forerib, and narrow loin; stomach very capacious, indicating roominess for food. Hook bones usually somewhat prominent; rump, long and fairly wide, but lacking in filling; twist deficient in depth and plumpness; thighs rather narrow as viewed from the side—in some instances decidedly incurving on rear line, and as viewed from behind greatly lacking in thickness. Bone in head and limbs usually somewhat coarse, but occasionally very fine; skin soft and pliable; hair soft; covering of natural flesh on valuable parts very lacking, decidedly thin over back, loin and in hindquarters.

The striking differences between the beef type and the dairy type are: In the one, low-set-ness, compactness, and breadth; in the other, legginess, ranginess, and narrowness; in the one, great width of back, loin and hindquarters, with maximum thickness of natural flesh over these parts; in the other, comparative narrowness and lightness in these parts, with but thin covering of flesh.

No comparison between breeds was intended or considered, but in the selection of steers that were distinctly of beef and dairy type it was thought best to select pure-bred or high-grade animals. Two Jerseys and two Holstein steers, bred on the college farm, were selected as representatives of the dairy type; and two pure-bred Angus steers, bred by W. A. Helsell, Odebolt, Iowa, and two high-grade Hereford steers, bred by the Stanton Breeding Farm, Riverside, Nebraska, were selected as fair representatives of the beef type. The ages were approximately as follows: Average of Herefords, sixteen months; of Angus, eighteen months; of Holsteins, twenty-four months; and of Jerseys, eighteen months.

The experiment was started January 1st, 1903, and ended January 1st, 1904. The steers were on dry feed during the entire year, as it was desired to know exactly how much food each lot consumed. Mixed grains and mixed hay were fed. Sorghum also was fed during July and August; it was immature, but succulent, and added variety to the ration. The proportion of grains fed varied from month to month, the per cent of corn being constantly increased. The rate of gain for the year



Beef and Dairy Types of Feeding Steers.

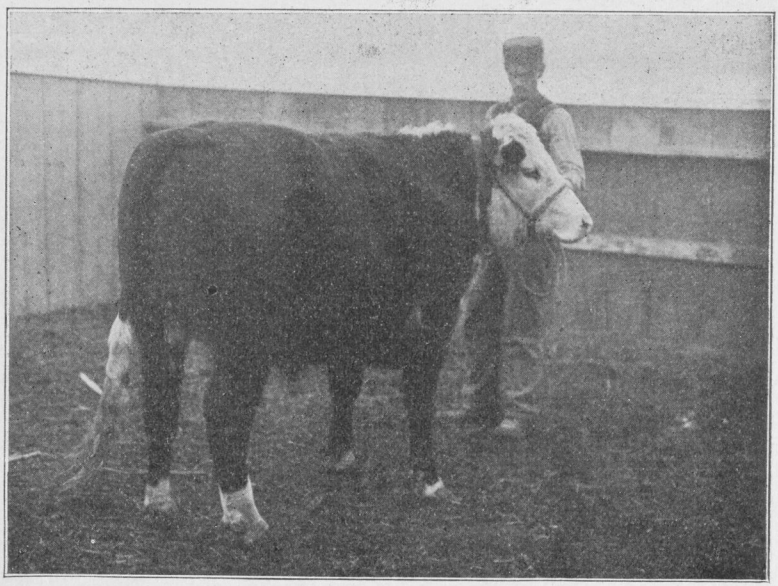
was considered fairly satisfactory, but varied considerably from month to month, due to variations in fill and weather. June and July were two of the most satisfactory months for gain, and the general behavior of the steers at this time indicated that they would have much preferred the freedom of the pasture to the confinement of the yard or stable.

The conditions were alike for all the steers, and the feed was of the same character for all, but each individual was given all he would clean up regularly.

The following tables give detailed information relative to the cost and kinds of feed consumed, gains, gains for pounds of feed consumed, pounds of dry matter, and cost per pound of gain.

HEREFORDS.

| | Lbs. of Feed | Price per Ton | Value |
|---|---|---|---|
| Hay | 3969 | $ 6.00 | $11.907 |
| Sorghum | 810 | .40 | .162 |
| Cornmeal | 8323.02 | 14.00 | 58.26 |
| Bran | 1226.04 | 14.00 | 8.584 |
| Oilmeal | 692.81 | 23.00 | 7.968 |
| Gluten feed | 1046.18 | 21.00 | 10.984 |
| Total | | | $97.865 |



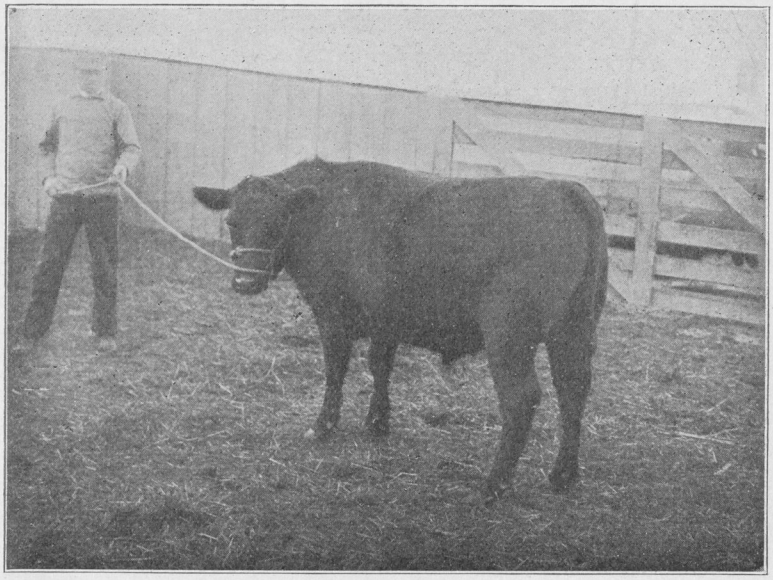
Beef Type Steer.—High Grade Hereford.

| | | |
|---|---|---|
| Average weight at beginning | 685 | lbs. |
| Total gain for lot | 1,288 | lbs. |
| Average gain per steer | 644 | lbs. |
| Total number of pounds of feed consumed | 16,067.35 | lbs. |
| Average number of pounds of feed consumed per steer | 8,033.67 | lbs. |
| Amount of grain required per pound of gain | 8.76 | lbs. |
| Amount of roughage required per pound of gain | 3.71 | lbs. |
| Amount of dry matter required per pound of gain | 10.543 | lbs. |
| Average value of feed consumed per steer | $ 48.9325 | |
| Average cost of one pound of gain | .076 | |
| Percentage of dressed weight in slaughter test | 60.8 | |
| Selling value—price, 5 cents per pound | $ 128.90 | |

ANGUS.

| | Lbs. of Feed Used | Price per Ton | Value |
|---|---|---|---|
| Hay | 3,828 | $ 6.00 | $11.484 |
| Sorghum | 872 | .40 | .1744 |
| Cornmeal | 7,642.03 | 14.00 | 53.494 |
| Bran | 1,131.165 | 14.00 | 7.918 |
| Oilmeal | 657.625 | 23.00 | 7.5626 |
| Gluten feed | 1,007.66 | 21.00 | 10.58 |
| Total | | | $91.213 |

| | | |
|---|---|---|
| Average weight at beginning | 685 | lbs. |
| Total gain for lot | 1,136 | lbs. |
| Average gain per steer | 568 | lbs. |
| Total number of pounds of feed consumed | 15,138.48 | lbs. |



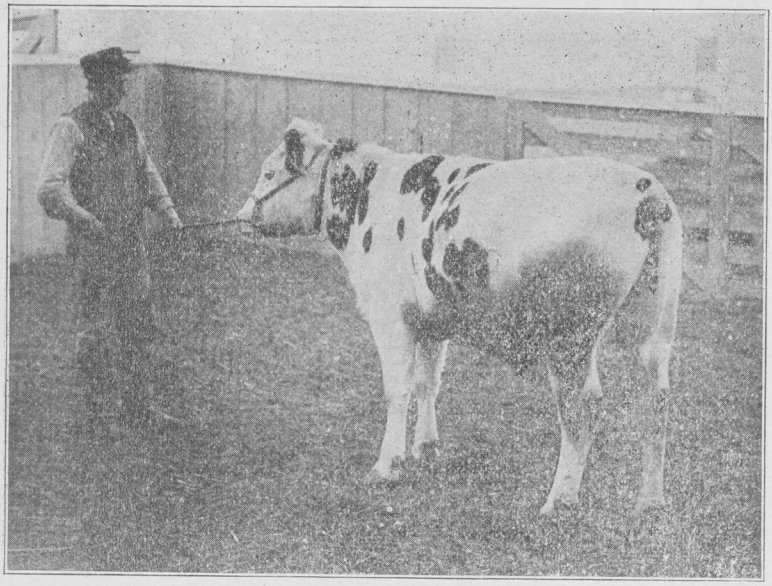
Beef Type Steer.—Pure Bred Angus.

| | | |
|---|---|---|
| Average number of pounds of feed consumed per steer | 7,569.24 | lbs. |
| Amount of grain required per pound of gain | 9.18 | lbs. |
| Amount of roughage required per pound of gain | 4.137 | lbs. |
| Amount of dry matter required per pound of gain | 11.187 | lbs. |
| Average value of feed consumed per steer | $ 45.606 | |
| Average cost for one pound of gain | .0802 | |
| Percentage of dressed weight in slaughter test | 62.6 | |
| Selling value—price, 4.75 cents per pound | $113.65 | |

## HOLSTEINS.

| | Lbs. of Feed Used | Price per Ton | Value |
|---|---|---|---|
| Hay | 3,995 | $ 6.00 | $11.985 |
| Sorghum | 872 | .40 | .1744 |
| Cornmeal | 8,247.57 | 14.00 | 57.7329 |
| Bran | 1,211.145 | 14.00 | 8.478 |
| Oilmeal | 667.885 | 23.00 | 7.68 |
| Gluten feed | 992.95 | 21.00 | 10.4259 |
| Total | | | $96.476 |

| | | |
|---|---|---|
| Average weight at beginning | 526 | lbs. |
| Total gain for lot | 1,354 | lbs. |
| Average gain per steer | 677 | lbs. |
| Total number of pounds of feed consumed | 15,986.55 | lbs. |
| Average number of pounds of feed consumed per steer | 7,993.275 | lbs. |
| Amount of grain required per pound of gain | 8.21 | lbs. |
| Amount of roughage required per pound of gain | 3.59 | lbs. |
| Amount of dry matter required per pound of gain | 9.939 | lbs. |



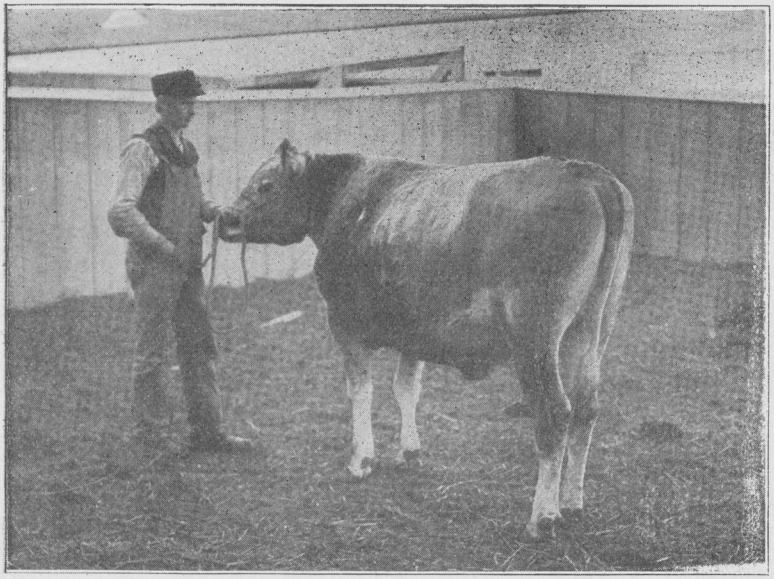
Dairy Type Steer.—Pure Bred Holstein.

| | |
|---|---|
| Average cost of feed consumed per steer | $48.238 |
| Average cost for one pound of gain | .0712 |
| Percentage of dressed weight in slaughter test | 58.9 |
| Selling value—3.85 cents per pound | $89.83 |

JERSEYS.

| | Lbs. of Feed Used | Price per Ton | Value |
|---|---|---|---|
| Hay | 3,648 | $ 6.00 | $10.944 |
| Sorghum | 872 | .40 | .1744 |
| Cornmeal | 6,990.8 | 14.00 | 48.9356 |
| Bran | 1,041.7 | 14.00 | 7.2919 |
| Oilmeal | 605.31 | 23.00 | 6.96 |
| Gluten feed | 948.05 | 21.00 | 9.9545 |
| Total | | | $84.26 |

| | | |
|---|---|---|
| Average weight at beginning | 622.5 | lbs. |
| Total gain for lot | 1,037 | lbs. |
| Average gain per steer | 518.5 | lbs. |
| Total number of pounds of feed consumed | 14,105.86 | lbs. |
| Average number of pounds of feed consumed per steer | 7,052.93 | lbs. |
| Amount of grain required per pound of gain | 9.243 | lbs. |
| Amount of roughage required per pound of gain | 4.358 | lbs. |
| Amount of dry matter required per pound of gain | 11.373 | lbs. |
| Average value of feed consumed per steer | $42.13 | |
| Average cost for one pound of gain | .0812 | |
| Percentage of dressed weight in slaughter test | | |
| Selling value—price, 3.65 cents per pound | $80.81 | |



Dairy Type Steer.—Pure Bred Jersey.

The foregoing tables are not presented as a comparison between breeds, as such a comparison would be useless; but they are given to show the general character of each lot.

The following tables give the gains, food consumed, cost of gains, and all other information of interest concerning the four beef type steers, and the four dairy type steers:

BEEF STEERS.

| | Lbs. of Feed Used | Price per Ton | Value |
|---|---|---|---|
| Hay | 7,797 | $ 6.00 | $ 23.39 |
| Sorghum | 1,682 | .40 | .3364 |
| Cornmeal | 15,965.05 | 14.00 | 111.754 |
| Bran | 2,357.505 | 14.00 | 16.502 |
| Oilmeal | 1,350.435 | 23.00 | 15.53 |
| Gluten feed | 2,053.84 | 21.00 | 21.564 |
| Total | | | $189.078 |

| | | |
|---|---|---|
| Average weight at beginning | 675 | lbs. |
| Total gain for lot | 2,424 | lbs. |
| Average gain per steer | 606 | lbs. |
| Total number of pounds of feed consumed | 31,205.83 | lbs. |
| Average number of pounds of feed consumed per steer | 7,801.455 | lbs. |
| Amount of grain required per pound of gain | 8.963 | lbs. |
| Amount of roughage required per pound of gain | 3.91 | lbs. |
| Amount of dry matter required per pound of gain | 10.84 | lbs. |

| | |
|---|---|
| Average value of feed consumed per steer | $ 47.269 |
| Average cost of one pound of gain | $ .0781 |
| Percentage of dressed weight in slaughter test | 61.7 |
| Selling value—average price, 4.888 cents per pound | $242.52 |

DAIRY STEERS.

| | Lbs. of Feed Used | Price per Ton | Value |
|---|---|---|---|
| Hay | 7,643 | $ 6.00 | $ 22.929 |
| Sorghum | 1,744 | .40 | .3488 |
| Cornmeal | 15,238.37 | 14.00 | 106.668 |
| Bran | 2,252.845 | 14.00 | 16.769 |
| Oilmeal | 1,273.195 | 23.00 | 14.64 |
| Gluten feed | 1,941 | 21.00 | 20.38 |
| Total | | | $181.736 |

| | | |
|---|---|---|
| Average weight at beginning | 574.25 | lbs. |
| Total gain for lot | 2,381 | lbs. |
| Average gain per steer | 597.75 | lbs. |
| Total number of pounds of feed consumed | 30,092.41 | lbs. |
| Average number of pounds of feed consumed per steer | 7,523.1 | lbs. |
| Amount of grain required to produce one pound of gain | 8.696 | lbs. |
| Amount of roughage required to produce one pound of gain | 3.94 | lbs. |
| Amount of dry matter required per pound of gain | 10.666 | lbs. |
| Average value of feed consumed per steer | $ 45.184 | |
| Average cost of one pound of gain | $ .0763 | |
| Percentage of dressed weight in slaughter test | 57.15 | |
| Selling value—average price, 3.752 cents per pounds | $170.64 | |

From the foregoing tables it is seen that:

The lot of beef type steers—four head—made slightly greater average gains—about 8.5 pounds each in twelve months' time.

The dairy type steers made their gains at a trifle less cost per pound of gain than did the beef steers, indicating that the digestive and assimilative functions were somewhat more vigorous.

The gains made by the dairy type steers were not distributed on the body in such a way as to command the highest prices. The cattle were bought in separate lots by Mr. Waite, head buyer for the Agar Packing Company, Des Moines, Iowa, and the prices given represent the market prices for such steers, December 28, 1903.

The beef type steers distributed a large proportion of their gains on the back, loin, and hindquarters, greatly increasing the thickness of the prime cuts; while the dairy type steers showed but very little increase in thickness on these parts; this point, however, will receive further attention in later paragraphs.

The beef type steers were of such character, when finished, as to command a much higher price; and from the dollar-and-

cents standpoint, were far more profitable cattle for the feeder despite the slightly greater economy of gain in the dairy type steers.

## SLAUGHTER TEST ON STEERS OF BEEF AND DAIRY TYPE

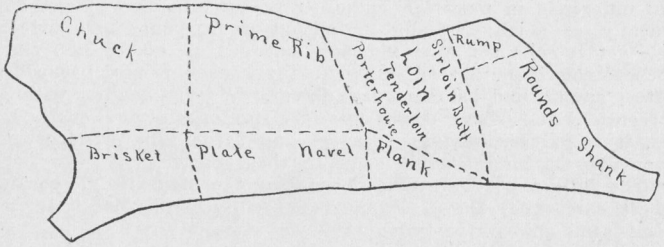
The questions under investigation were:

1. Which type shows greater amount of offal?

2. Which type carries the higher percentage of tallow, (a cheap product)?

3. Which type carries the higher percentage of valuable cuts?

4. In considering the various commercial cuts from the two types, what differences are to be found as regards: weight; thickness; covering of fat; marbling of flesh; color; and fineness of grain?




5. Is the low price paid for dairy type steers due to prejudice, or to an actual inferiority in the value of their carcass?

On Monday, January 11th, Mr. Gosling, of Kansas City, examined the eight steers, and his comments in substance were as follows:

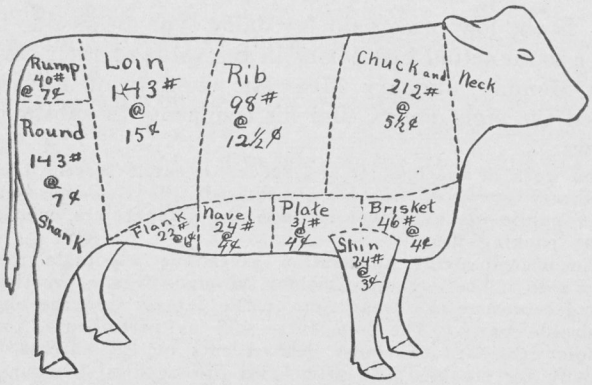
"The work of the breeder and feeder of cattle for the block must be constantly governed by the demands of the consumer—our great American public—as expressed through the slaughterers, who are now our great packing firms.

"The accompanying illustration gives the wholesale method of cutting a side of beef,—these divisions are made from a practical standpoint, and represent the separation of the carcass into the choice and less desirable parts. The loin cuts—sold as porterhouse, tenderloin, and sirloin cuts—are the most desired cuts of the carcass, and are used chiefly for steaks. The prime ribs are next in demand, and are sold chiefly for roasts. The round comes next, and like the loin is used chiefly for steaks. The rump is also in good demand—practically as much so as the round; it is used for roasts, boiling pieces, and steaks. The chuck sells at approximately the same price, and is used

for roasts and boiling pieces chiefly—occasionally for roasts. The brisket, plate, navel, flank, and shanks are the less desirable parts. They are used for pot roasts, for boiling and for soup.

"The reason certain cuts are preferred to others is briefly as follows: Consumers like thick, tender steaks and roasts. These can be secured only from those parts of the body that carry heavy muscles which are but little used. This is difficult to secure, for muscles develope by exercise, and there is a tendency to deterioration in those muscles which are but little used. Exercise, however, tends to make the muscle fibers coarse, and this gives a coarse grain to the meat, and an undesirable toughness when it is cooked. The muscles on the back and loin are but little used, and are consequently fine in grain and tender; but since they are little used and cannot be developed by exercise, (which would, in any event, only make these cuts less desirable) we must secure more flesh in these valuable parts by a more careful selection of our breeding animals. The muscles in the round and rump are less used than those in the shoulder and neck; and they are consequently finer in grain and tenderer than the cuts from the latter. The brisket, plate, navel, and flank cuts are so light and thin, that is, in the flesh portion (or lean meat), as not to permit of cutting into choice market pieces; and the shanks furnish rather coarse flesh. The results of these differences are seen in the higher prices for the choicer cuts. The difference in price by no means represents the actual difference in nutritive value,—a pound of round steak contains practically as much available nutriment as a pound of porterhouse steak,—yet it sells for approximately one-half as much; and the porterhouse steak is purchased, even at the higher prices, because it is tenderer, juicier, and has a choicer flavor. We are dealing with facts, not theories, and since these cuts are preferable and yield higher prices, it is our business as breeders and feeders to produce animals that possess maximum development in these parts."

"The following illustration shows how the steer No. 7, considered the best carcass of the eight steers killed, was divided into wholesale cuts, and gives wholesale prices on same."




"The total weight of these cuts is 763 lbs, in addition to which there are 36 lbs. of cod fat and suet (3.5 cents per lb.), not shown on illustration. This makes a total weight of 799 lbs., or 13 lbs less than the weight of the carcass whole; but while a part of this deficiency

is due to the loss of juices and waste in cutting, part is due to the fact that the left side was slightly heavier than the right; and this difference has not been taken into consideration in figuring the weights of the separate parts. The total value, at the regular wholesale prices shown, is $63.04. The loins and ribs constitute but 27.68 per cent of the total carcass weight, but yield 49.49 per cent of the total selling price.

At the average price per pound on the two steers 7 and 8, this carcass cost the butcher .0699 cents per pound, or a total of $56.76 for the 812 lbs. of meat. This leaves the slaughterer a profit of $6.28. Suppose that this steer had been heavier in loin and ribs, and lighter in chuck—160 lbs. loins, 83 lbs. ribs, and 190 lbs. chuck— which is entirely possible. The slaughterer would then receive $66.43, or a profit of $9.67. In addition to securing a greater profit on such a carcass, it would be more easily sold. This roughly illustrates the importance of paying particular attention to broad, thickly covered backs and loins in our breeding and feeding animals. Buyers in our large markets never purchase an animal without making an estimate of how it will kill out; and a breeder should never purchase an animal for use in his herd without first making a mental summary of the kind of carcass he would kill out—for the beef market is the court of last resort for the cattle man.''

## COMMENTS ON THE STEERS.

### No. 1. High-grade Hereford, Beef Type.

''No. 1 is a ripe steer about two years old, and weighs 1,320 lbs. This is a good weight. He is what we call a choice light to medium weight steer. He has a magnificent chine, neat hips, a nice rump, a thick loin, (loin edge fairly good) and thick covering on ribs, thick enough on plates, but shows a slight indication of ''rolls'' on ribs. His shoulder is well covered, and his neck vein ample. His thick covering on ribs and in flanks, and his heavy tongue root, all indicate ripeness. His bone is fine, yet ample to bear his weight, and his top and underline are good. The brisket protrudes enough, and has all the fat it should at the point. The outside of thigh shows a little indentation, and is not quite as round as we would like it; he also lacks somewhat in inner thigh (twist). but is not bad here.

### No. 6. High Grade Hereford, Beef Type.

''Weight 1,338 lbs. We pass him as having done fairly well. This steer is a little fatter in ribs than the other steer, but will not show such ''rolls'' when killed. He has a broad, heavy chine of beef, but just a bit close at top. Shoulder is barer than in No. 1, and shoulder point more prominent. He is smoothly turned at hips and well fleshed but his rump droops a trifle; outside of thigh has same weakness as No. 1. His twist same, and he is a little light and cut up in flank; brisket is all that we want. The slight droop in rump will be much less noticeable when he is hung up, and you will find that his thigh will appear fuller than it now does.

### No. 2. Jersey, Dairy Type,

''Weight 1,100 lbs. This steer is fairly smooth, and when killed will surprise you, for you do not expect much from a Jersey. His

hip is bare, his flank light, twist practically absent, and his shoulders and flat ribs bare—shows some fat in rump. Will dress out 58 per cent —tallow included.

## No. 3. Jersey, Dairy Type.

"Weight 1,182 lbs. This steer has a somewhat fuller neck-vein than the other steer, and will probably dress out a little better. Dressing per cent, 58—tallow included.

## No. 4. Holstein, Dairy Type.

"Weight 1,316 lbs. Closely resembles a mule in hindquarters. Back bone is nearly, if not entirely, bare. He lacks in twist, brisket and tongue root, and droops slightly in rump. Is fairly fleshed on back ribs."

## No. 5. Holstein, Dairy Type.

"Weight 1,090 lbs. We have here a Holstein of a different type from the preceding one. He carries a good amount of flesh on his back, compared to what we expect of dairy breeds. Chine is better, back rib has a little more fleshing, but shoulder is bare and tongue root lacks filling. Should kill out 59 per cent."

## No. 8. Angus, Beef Type.

"Weight 1,142 lbs. This steer is rough in shoulder, and a little too coarse throughout. This heaviness in chuck will detract to some extent from the percentage of choice cuts to total carcass weight. Twist fairly good, but somewhat lacking in buttock. He has plenty of flesh in hindquarters. Should dress 64 per cent."

## No. 7. Angus, Beef Type.

"Weight 1,324 lbs. This looks to me to be the best steer in the lot, from a carcass standpoint. Is a little flat in rib, but has beautiful hindquarters. He has a good chine, and a well filled tongue root,—it is not quite so excessive as the Herefords, but better than the dairy type steers. He is trim in brisket, fine in bone, and certainly has more flesh than any of the other steers."

The slaughtering was done by Mr. Hoffman, Superintendent of the killing department at the Agar plant in Des Moines; and his assistant, Mr. Kruse. We are greatly indebted to them for their careful and painstaking work under very unfavorable conditions. The following tables give the weights of the internal parts; live weight, beef, tallow, and hide from each steer.

The numbers given will apply to the steers throughout the rest of this bulletin.

No. 1.

BEEF TYPE—GRADE HEREFORD

| | lbs. |
|---|---|
| Head | 28. |
| Tongue | 4. |
| Tongue trimmings | 4. |
| Feet | 16. |
| Caul fat | 24. |
| Paunch and contents, total | 151. |
| Paunch fat | 24. |
| Tripe (paunch, stripped and emptied) | 22.5 |
| Intestines and contents, total | 78.5 |
| Intestines fat | 28. |
| Heart and lung fat | 11. |
| Heart | 3.5 |
| Lungs and windpipe | 6. |
| Liver | 13. |
| Summary | |
| Live weight | 1338. |
| Beef | 792. |
| Tallow, (loose fat not counted in dressing %) | 87. |
| Hide | 90. |

No. 2.

DAIRY TYPE—PURE BRED JERSEY

| | |
|---|---|
| Head | 24.5 |
| Tongue | 4.5 |
| Tongue trimmings | 3.5 |
| Feet | 8.5 |
| Caul fat | 25. |
| Paunch and contents, total | 129.5 |
| Paunch fat | 20. |
| Tripe (paunch, stripped and emptied) | 16. |
| Intestines and contents, total | 76. |
| Intestine fat | 53.5 |
| Heart and lung fat | 18. |
| Heart | 4.5 |
| Lungs and windpipe | 10. |
| Liver | 11. |
| Summary | |
| Live weight | 1100. |
| Beef | 592. |
| Tallow, (loose fat not counted in dressing %) | 116.5 |
| Hide | 66. |

No. 3.

DAIRY TYPE—PURE BRED JERSEY

| | lbs. |
|---|---|
| Head | 28. |
| Tongue | 4. |
| Tongue trimmings | 3.5 |
| Feet | 15.5 |
| Caul fat | 41.5 |
| Paunch and contents, total | 133. |
| Paunch fat | 21.5 |
| Tripe (paunch, stripped and emptied) | 11. |
| Intestines and contents, total | 79.5 |
| Intestine fat | 36. |
| Heart and lung fat | 11.5 |
| Heart | 4. |
| Lungs and windpipe | 10. |
| Liver | 15. |
| Summary | |
| Live weight | 1182. |
| Beef | 636. |
| Tallow (loose fat not counted in dressing %) | 110.5 |
| Hide | 77. |

No. 4.

DAIRY TYPE—PURE BRED HOLSTEIN

| | |
|---|---|
| Head | 25. |
| Tongue | 4.5 |
| Tongue trimmings | 2.5 |
| Feet | 17. |
| Caul fat | 14. |
| Paunch and contents, total | 133. |
| Paunch fat | 12.5 |
| Tripe (paunch, stripped and emptied) | 19. |
| Intestines and contents, total | 50.5 |
| Intestine fat | 17.5 |
| Heat and lung fat | 7.5 |
| Heart | 3.5 |
| Lungs and windpipe | 11. |
| Liver | 11.5 |
| Summary | |
| Live weight | 1316. |
| Beef | 773. |
| Tallow (loose fat not counted in dressing %) | 51.5 |
| Hide | 83. |

No. 5.

DAIRY TYPE—PURE BRED HOLSTEIN

| | lbs. |
|---|---|
| Head | 23.5 |
| Tongue | 3.5 |
| Tongue trimmings | 2.5 |
| Feet | 15. |
| Caul fat | 11.5 |
| Paunch and contents, total | 125. |
| Paunch fat | 10. |
| Tripe (paunch, stripped, and emptied) | 16. |
| Intestines and contents, | 63.5 |
| Intestine fat | 15. |
| Heart and lung fat | 3. |
| Heart | 1.5 |
| Lungs and windpipe | 8.5 |
| Liver | 11. |
| Summary | |
| Live weight | 1090. |
| Beef | 602. |
| Tallow (loose fat not counted in dressing %) | 39.5 |
| Hide | 61. |

No. 6.

BEEF TYPE—GRADE HEREFORD

| | |
|---|---|
| Head | 25. |
| Tongue | 4. |
| Tongue trimmings | 5. |
| Feet | 17. |
| Caul fat | 23.5 |
| Paunch and contents, total | 132. |
| Paunch fat | 26. |
| Tripe (paunch, stripped, and emptied) | 17. |
| Intestines and contents, total | 66. |
| Intestine fat | 22. |
| Heart and lung fat | 7.5 |
| Heart | 6. |
| Lungs and windpipe | 8. |
| Liver | 18. |
| Summary | |
| Live weight | 1320. |
| Beef | 777. |
| Tallow (loose fat not counted in dressing %) | 79. |
| Hide | 102.5 |

No. 7.

BEEF TYPE—PURE BRED ANGUS

| | lbs. |
|---|---|
| Head | 25.5 |
| Tongue | 2. |
| Tongue trimmings | 1.5 |
| Feet | 19. |
| Caul fat | 23. |
| Paunch and contents, total | 115.5 |
| Paunch fat | 11. |
| Tripe (paunch, stripped, and emptied) | 16. |
| Intestines and contents, total | 54. |
| Intestine fat | 19. |
| Heart and lung fat | 6. |
| Heart | 2.5 |
| Lungs and windpipe | 6.5 |
| Liver | 10. |
| Summary | |
| Live weight | 1324. |
| Beef | 812. |
| Tallow (loose fat not counted in dressing %) | 59. |
| Hide | 80. |

No. 8.

BEEF TYPE—PURE BRED ANGUS

| | |
|---|---|
| Head | 20.5 |
| Tongue | 3.5 |
| Tongue trimmings | 2.5 |
| Feet | 10.5 |
| Caul fat | 22.5 |
| Paunch and contents, total | 101.5 |
| Paunch fat | 18. |
| Tripe (paunch, stripped, and emptied) | 20. |
| Intestines and contents, total | 52. |
| Intestine fat | 21.5 |
| Heart and lung fat | 8. |
| Heart | 3. |
| Lung and windpipe | 7.5 |
| Liver | 12. |
| Summary | |
| Live weight | 1142. |
| Beef | 680. |
| Tallow (loose fat not counted in dressing %) | 70. |
| Hide | |

The carcasses were cut by Louis Young, expert cutter from T. B. Terry's market in Chicago. Mr. Young has spent more than twenty years in this line of work, and his critical comments on the value of the different wholesale and retail cuts were of great value. Values given are at regular city prices. The following tables give the chief wholesale cuts, their weights, the percentage of carcass weight which they constitute, and the wholesale and retail prices per pound; also the values at such prices, and other information of interest to all meat producers and consumers. The illustrations which follow show the particular differences between the various carcasses and cuts, with Mr. Gosling's comments on the same.

## No. 1.

Weights of the different cuts of beef—right side only cut up. Percentage which each cut bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs | 34 | 8.77 | 12.5c | $ 4.25 | 18c | $ 6.12 |
| Chuck | 96.5 | 24.90 | 5.5c | 5.31 | 10c | 9.65 |
| Brisket | 24 | 6.19 | 4c | | 6c | |
| Plate | 14 | 3.63 | 4c | 1.94 | 6c | 2.91 |
| Navel | 10.5 | 2.71 | 4c | | 6c | |
| Shank meat | 2 | .51 | 5c | .10 | 6c | .12 |
| Shank beef | 10.5 | 2.71 | 2.5c | .262 | 3c | .315 |

HINDQUARTERS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | S.18 | 8.586 |
| Loin | 71.5 | 18.45 | 15c | 10.725 | P.22-25c | 5.604 |
| Round | 69.5 | 17.93 | 7c | 4.865 | .12c | 8.34 |
| Rump | 21.5 | 5.54 | 7c | 1.505 | 10c | 2.10 |
| Flank steak | 3 | .77 | 10c | .30 | 12.5c | .375 |
| Flank beef | 8 | 2.06 | 5c | .40 | 6c | .48 |
| Cod fat | 9 | 2.32 | 3.5c | .315 | 3.5c | .315 |
| Suet | 13.5 | 3.51 | 3.5c | .472 | 3.5c | .472 |

Total retail value of right side.....$45.387

Total retail value of carcass.....$90.774

Weight right side after cutting.....387.5 lbs.

Total wholesale value right side.....$30.444

Approximate wholesale value of carcass.....$60.888

Weight right side before cutting.....394 lbs.

Weight left side before cutting.....398 lbs.

Carcass weight before cutting.....792 lbs.

## No. 2.

Weights of the different cuts of beef—right side only cut up. Percentage which each bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs | 29 | 9.96 | 10c | $ 2.90 | 16c | $ 4.64 |
| Chuck | 76 | 26.11 | 5c | 3.80 | 10c | 7.60 |
| Brisket | 16.5 | 5.67 | 4c | | 6c | |
| Plate | 12 | 4.12 | 4c | 1.50 | 6c | 2.25 |
| Navel | 9 | 3.09 | 4c | | 6c | |
| Shank meat | 2 | .69 | 5c | .10 | 6c | .12 |
| Shank beef | 8.5 | 2.92 | 2.5c | .217 | 2.5c | .217 |

HINDQUARTERS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | S.16c | 5.28 |
| Loin | 49.5 | 17.01 | 12c | 5.949 | P.20-22c | 4.95 |
| Round | 49.5 | 17.01 | 7c | 3.465 | 12c | 5.94 |
| Rump | 12 | 4.12 | 7c | .84 | 10c | 1.20 |
| Flank steak | 1.5 | .51 | 10c | .15 | 12.5c | .187 |
| Flank beef | 4.5 | 1.54 | 5c | .225 | 6c | .27 |
| Cod fat | 4.5 | 1.54 | 3.5c | .157 | 3.5c | .157 |
| Suet | 16.5 | 5.67 | 3.5c | .577 | 3.5c | .577 |

Total retail value of right side.....$33.388
Total retail value of carcass.....$66.776
Weight right side after cutting.....291 lbs.
Total wholesale value right side.....$19.88
Approximate wholesale value of carcass.....$39.76
Weight right side before cutting.....294 lbs.
Weight left side before cutting.....298 lbs.
Weight of carcass before cutting.....592 lbs.

## No. 3.

Weights of the different cuts of beef—right side only cut up. Percentage which each cut bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs | 27 | 8.55 | 10c | $ 2.70 | 16c | $ 4.32 |
| Chuck | 84.5 | 26.78 | 5c | 4.225 | 10c | 8.45 |
| Brisket | 19.5 | 6.18 | 4c | | 6c | |
| Plate | 11.5 | 3.64 | 4c | 1.60 | 6c | 2.40 |
| Navel | 9 | 2.85 | 4c | | 6c | |
| Shank meat | 2 | .63 | 5c | .10 | 6c | .12 |
| Shank beef | 8.5 | 2.69 | 2.5c | .215 | 2.5c | .215 |

HINDQUARTERS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | S.16c | 5.44 |
| Loin ..... | 51 | 16.16 | 12c | 6.12 | P.20-22c | 3.57 |
| Round ..... | 55.5 | 17.59 | 7c | 3.885 | 12c | 6.66 |
| Rump ..... | 15 | 4.75 | 7c | 1.05 | 10c | 1.50 |
| Flank steak.. | 1.5 | .47 | 10c | .15 | 12.5c | .187 |
| Flank beef .. | 3.5 | 1.10 | 5c | .175 | 6c | .27 |
| Cod fat ..... | 6 | 1.90 | 3.5c | .27 | 3.5c | .27 |
| Suet ..... | 21 | 6.65 | 3.5c | .735 | 3.5c | .735 |

Total retail value of right side.....$34.137
Total retail value of carcass.....$68.274
Weight right side after cutting.....315.5 lbs.
Total wholesale value right side.....$21.225
Approximate wholesale value of carcass.....$42.45
Weight right side before cutting.....317 lbs.
Weight left side before cutting.....319 lbs.
Weight of carcass before cutting.....636 lbs.

## No. 4.

Weights of the different cuts of beef—right side only cut up. Percentage which each cut bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs ..... | 29 | 7.68 | 11c | $ 3.19 | 16c | $ 4.64 |
| Chuck ..... | 104 | 27.55 | 5.5c | 5.72 | 10c | 10.40 |
| Brisket ..... | 20.5 | 5.43 | 4c | .82 | 6c | 1.23 |
| Plate ..... | 11 | 2.91 | 4c | .44 | 6c | .66 |
| Navel ..... | 9 | 2.38 | 4c | .36 | 6c | .54 |
| Shank meat ... | 2.5 | .66 | 5c | .125 | 6c | .15 |
| Shank beef .. | 12 | 3.17 | 2.5 | .30 | 3c | .36 |

HINDQUARTERS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | S.16c | 7.253 |
| Loin ..... | 68 | 18.01 | 14c | 9.52 | P.20-22c | 4.758 |
| Round ..... | 75.5 | 20.00 | 7c | 5.285 | 12c | 9.06 |
| Rump ..... | 19.5 | 5.16 | 7c | 1.365 | 10c | 1.95 |
| Flank steak.. | 2.5 | .66 | 10c | .25 | 12.5c | .312 |
| Flank beef... | 9.5 | 2.51 | 5c | .475 | 6c | .57 |
| Cod fat ..... | 5.5 | 1.46 | 3.5c | .192 | 3.5c | .192 |
| Suet ..... | 9 | 2.38 | 3.5c | .315 | 3.5c | .315 |

Total retail value of right side.....$42.39
Total retail value of carcass.....$84.78
Weight right side after cutting.....377.5 lbs.
Total wholesale value right side.....$28.357
Approximate wholesale value of carcass.....$56.714
Weight right side before cutting.....383 lbs.
Weight left side before cutting.....390 lbs.
Weight of carcass before cutting.....773 lbs.

## No. 5.

Weights of the different cuts of beef—right side only cut up. Percentage which each cut bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs | 26.5 | 9.01 | 10c | $ 2.65 | 16c | $ 4.24 |
| Chuck | 78.5 | 26.70 | 5c | 3.925 | 10c | 7.85 |
| Brisket | 16.5 | 5.61 | 4c | | 6c | |
| Plate | 9.5 | 3.23 | 4c | 1.34 | 6c | 2.01 |
| Navel | 7.5 | 2.55 | 4c | | 6c | |
| Shank meat | 2 | .68 | 5c | .10 | 6c | .12 |
| Shank beef | 10 | 3.40 | 2.5c | .25 | 3c | .30 |

HINDQUARTERS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | S.16c | 2.025 |
| Loin | 59.5 | 17.17 | 12c | 6.06 | P.20-22 | 3.545 |
| Round | 61.5 | 20.91 | 7c | 4.305 | 12c | 7.38 |
| Rump | 15 | 5.10 | 7c | 1.05 | 10c | 1.50 |
| Flank steak | 2 | .68 | 10c | .20 | 12.5c | .25 |
| Flank beef | 4.5 | 1.53 | 5c | .225 | 6c | .27 |
| Cod fat | 4 | 1.36 | 3.5c | .14 | 3.5c | .14 |
| Suet | 6 | 2.04 | 3.5c | .21 | 3.5c | .21 |

Total retail value of right side.....$29.84
Total retail value of carcass.....$59.68
Weight right side after cutting.....294 lbs.
Total wholesale value right side.....$20.455
Approximate wholesale value of carcass.....$40.91
Weight right side before cutting.....300 lbs.
Weight left side before cutting.....302 lbs.
Weight of carcass before cutting.....602 lbs.

## No. 6.

Weights of the different cuts of beef—right side only cut up. Percentage which each cut bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs | 34.5 | 9.01 | 12c | $ 4.14 | 18c | $ 6.21 |
| Chuck | 98 | 25.62 | 5.5c | 5.39 | 10c | 9.80 |
| Brisket | 24 | 6.27 | 4c | .96 | 6c | 1.44 |
| Plate | 17.5 | 4.57 | 4c | .70 | 6c | 1.05 |
| Navel | 12 | 3.13 | 4c | .48 | 6c | .72 |
| Shank meat | 2 | .52 | 5c | .10 | 6c | .12 |
| Shank beef | 9.5 | 2.48 | 2.5c | .2375 | 3c | .285 |

HINDQUARTERS

| | | | | | S.18 | 7.678 |
|---|---|---|---|---|---|---|
| Loin ..... | 64 | 16.73 | 15c | 9.60 | P.22-25c | 5.006 |
| Round ..... | 66 | 17.25 | 7c | 4.62 | 12c | 7.92 |
| Rump ..... | 19.5 | 5.09 | 7c | 1.365 | 10c | 1.95 |
| Flank steak .. | 2.5 | .65 | 10c | .25 | 12.5c | .31 |
| Flank beef .. | 9 | 2.35 | 5c | .45 | 6c | .54 |
| Cod fat ..... | 9 | 2.35 | 3.5c | .315 | 3.5c | .315 |
| Suet ..... | 15 | 3.92 | 3.5c | .525 | 3.5c | .525 |

Total retail value of right side.....$36.191
Total retail value of carcass.....$72.382
Weight right side after cutting.....382.5 lbs.
Total wholesale value right side.....$29.1325
Approximate wholesale value of carcass.....$58.265
Weight right side before cutting.....386 lbs.
Weight left side before cutting.....391 lbs.
Carcass weight before cutting.....777 lbs.

## No. 7.

Weights of the different cuts of beef—right side only cut up. Percentage which each cut bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs ..... | 39 | 9.76 | 12.5c | $ 4.875 | 18c | $ 7.02 |
| Chuck ..... | 106 | 26.53 | 5.5c | 5.83 | 10c | 10.60 |
| Brisket ..... | 23 | 5.77 | 4c | | 6c | |
| Plate ..... | 15.5 | 3.88 | 4c | 2.02 | 6c | 3.03 |
| Navel ..... | 12 | 3.00 | 4c | | 6c | |
| Shank meat . | 2 | 5 | 5c | .10 | 6c | .12 |
| Shank beef .. | 10 | 2.5 | 2.5c | .25 | 3c | .30 |

HINDQUARTERS

| | | | | | S.18c | 8.568 |
|---|---|---|---|---|---|---|
| Loin ..... | 71.5 | 17.89 | 15c | 10.725 | P.22-25c | 5.59 |
| Round ..... | 71.5 | 17.89 | 7c | 5.00 | 12c | 8.58 |
| Rump ..... | 20 | 5 | 7c | 1.40 | 10c | 2.00 |
| Flank steak . | 2.5 | .625 | 10c | .25 | 12.5c | .31 |
| Flank beef .... | 8.5 | 2.125 | 5c | .425 | 6c | .51 |
| Cod fat ..... | 6.5 | 1.625 | 3.5c | .2275 | 3.5c | .2275 |
| Suet ..... | 11.5 | 2.875 | 3.5c | .4025 | 3.5c | .4025 |

Total retail value of right side.....$47.258
Total retail value of carcass.....$94.516
Weight right side after cutting.....399.5 lbs.
Total wholesale value right side.....$31.505
Approximate wholesale value of carcass.....$63.01
Weight right side before cutting.....404 lbs.
Weight left side before cutting.....408 lbs.
Carcass weight before cutting.....812 lbs.

No. 8.

Weights of the different cuts of beef—right side only cut up. Percentage which each bears to the side, and wholesale and retail values on said cuts.

FOREQUARTERS

| | Weight | Percent | Wholesale Price per lb. | Wholesale Value | Retail Price per lb. | Retail Value |
|---|---|---|---|---|---|---|
| Ribs | 31.5 | 9.56 | 12c | $ 3.78 | 16.5c | $ 5.197 |
| Chuck | 88.5 | 26.85 | 5.5c | 4.867 | 10c | 8.85 |
| Brisket | 18 | 5.46 | 4c | .72 | 6c | 1.08 |
| Plate | 11 | 3.33 | 4c | .44 | 6c | .66 |
| Navel | 10.5 | 3.18 | 4c | .42 | 6c | .63 |
| Shank meat | 2 | .60 | 5c | .10 | 6c | .12 |
| Shank beef | 9 | 2.73 | 2.5c | .225 | 3c | .27 |

HINDQUARTERS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | S.16.5 c | 6.213 |
| Loin | 56.5 | 17.14 | 14.5 | 8.192 | P.21-23c | 4.142 |
| Round | 59 | 17.90 | 7c | 4.13 | 12c | 7.08 |
| Rump | 17 | 5.15 | 7c | 1.19 | 10c | 1.70 |
| Flank steak | 2 | .60 | 10c | .20 | 12.5c | .25 |
| Flank beef | 7 | 2.12 | 5c | .35 | 6c | .42 |
| Cod fat | 5.5 | 1.66 | 3.5c | .1925 | 3.5c | .1925 |
| Suet | 12 | 3.64 | 3.5c | 42 | 3.5c | .42 |

Total retail value of right side.....$37.225

Total retail value of carcass.....$74.450

Weight right side after cutting.....329.5 lbs.

Total wholesale value right side.....$25.2265

Approximate wholesale value of carcass.....$50.453

Weight right side before cutting.....336 lbs.

Weight left side before cutting.....344 lbs.

Carcass weight before cutting.....680 lbs.

The total wholesale valuation given is correct, as it is figured on the weights after cutting. The apparent discrepancy between the weight of the right side before and after cutting, is due to the fact that there is more or less loss of juices, and waste in cutting. The approximate wholesale value is very nearly correct, as the greater weight of the left side is due chiefly to the close kidney on that side. From the total retail value given, a rebate or deduction of from six to ten dollars must be made to allow for the unavoidable wastes in cutting and selling, precise amount varies according to carcass, very fat carcasses (those carrying an excess) showing a higher waste in retail selling than others.

This foot note applies to the preceding tables, No's. 1, 2, 3, 4, 5, 6, 7 and 8.

## FINANCIAL STATEMENT ON COST AND WHOLESALE VALUE OF CARCASSES.*

| | | |
|---|---|---|
| 2 | Herefords, 2,578 lbs., at 5c per lb | $128.90 |
| | Killing, $1.50 per head | 3.00 |
| | Commission per hundred at 5c | 1.33 |
| | Freight, 8c per hundred | 2.13 |
| | | $135.36 |
| 2 | No. 1 high-grade native hides, 192 lbs., less 2 lbs. shrink per hide—188 lbs. at 8c per pound | $ 15.04 |
| | No. 1 tallow, 166 lbs. at 3c | 4.98 |
| 2 | Tongues at 30c | .60 |
| | | $ 20.62 |
| | Dressed weight, 1,569 lbs. Average, 784 lbs. | |
| | Average yield, 60.8 per cent. | |
| | Cost of dressed beef | $114.74 |
| | Average price per lb | .0731 |
| | This price must be realized in order to come out even. | |
| | Actual returns at wholesale prices | $119.153 |
| 2 | Aberdeen Angus, 2,392 lbs., at 4 3-4c per lb | $113.62 |
| | Killing, $1.50 per head | 3.00 |
| | Commission per hundred at 5c | 1.19 |
| | Freight, 8c per hundred | 1.91 |
| | | $119.72 |
| 2 | No. 1 high-grade native hides, 142 lbs., less 2 lbs. shrink per hide, 138 lbs., at 8c | 11.04 |
| | No. 1 tallow, 129 lbs., at 3c | 3.87 |
| 2 | Tongues at 30c | .60 |
| | | $ 15.51 |
| | Dressed weight, 1,490 lbs. Average, 745 lbs. | |
| | Average yield 62.6 per cent. | |
| | Cost of dressed beef | $104.21 |
| | Average price per lb | .0699 |
| | This price must be realized in order to come out even. | |
| | Actual returns at wholesale prices | $113.46 |
| 2 | Holsteins, 2,334 lbs., at 3.85c per lb | $ 89.86 |
| | Killing, $1.50 per head | 3.00 |
| | Commission per hundred at 5c | 1.16 |
| | Freight, 8c per hundred | 1.86 |
| | | $ 95.88 |

* No account is taken of the value of the hearts, livers, tripe, head feet, and other offal. Most of this is waste to the country butcher, but yields some profit to modern packing houses; how much, we are not prepared to state. Selling weights represent the final home weight minus a 3 per cent shrink. The dressed percentages are figured from the shrunk weight.

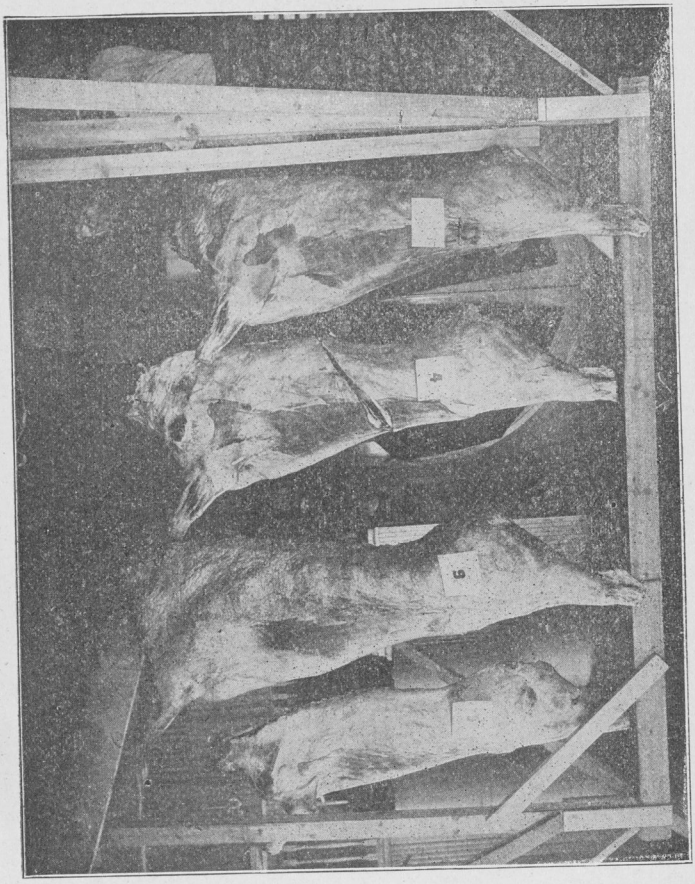
| | | |
|---|---|---|
| 2 | No. 1 steer hides, 144 lbs., less 2lbs. shrink per hide, 140 lbs., at 7c per lb | 9.80 |
| | No. 1 tallow, 91 lbs., at 3c | 2.73 |
| 2 | Tongues at 30c | .60 |
| | | $ 13.13 |

Dressed weight, 1,375 lbs. Average, 687 lbs
Average yield, 58.9 per cent.
Cost of dressed beef ..... $ 82.75
Average price per pound ..... .061
This price must be realized in order to come out even.
Actual returns at wholesale prices ..... $ 97.62

| | | |
|---|---|---|
| 2 | Jerseys, 2,214 lbs., at 3.65c per lb | $ 80.81 |
| | Killing, $1.50 per head | 3.00 |
| | Commission per hundred at 5c | 1.10 |
| | Freight, 8c per hundred | 1.77 |
| | | $ 86.68 |
| 2 | No. 1 steer hides 143 lbs., less 2 lbs. shrink per hide, 139 lbs., at 7c per lb | 9.73 |
| | No. 1 tallow, 277 lbs., at 3c | 6.81 |
| 2 | Tongues at 30c | .60 |
| | | $ 17.14 |

Dressed weight, 1,228 lbs. Average, 614 lbs.
Average yield, 55.4 per cent.
Cost of dressed beef ..... $ 69.54
Average price per lb ..... .0557
This price must be realized in order to come out even.
Actual returns at wholesale prices ..... $ 82.21

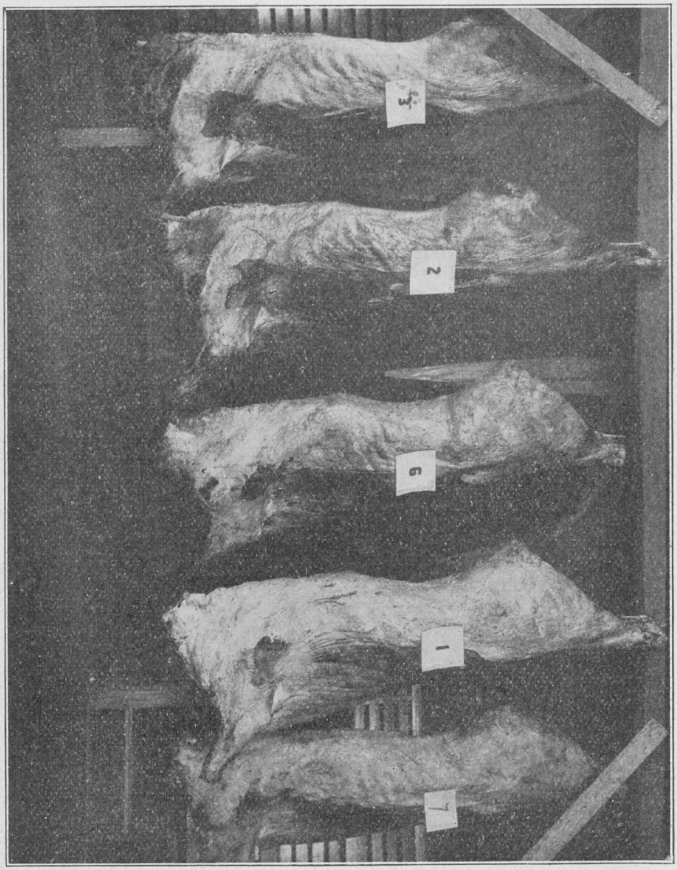
The net returns of the slaughters, at wholesale prices, is apparently greater in the case of the dairy type steers than in the case of the beef type steers; in other words, the beef type steers were bought on a much closer margin than the dairy type steers While this apparently indicates that the price paid for the dairy type steers is lower than it should be (in proportion to the prices paid for steers of the beef type), other modifying conditions undoubtedly militate against this apparently greater profit. The dairy type carcasses carried an average of only 25.88 per cent weight in the valuable cuts, while the beef type carried 26.82 per cent; and, in addition to this, choice carcasses find much readier sale than No. 2 and No. 3 carcasses. This is a matter of importance, for it means that the expense of handling No. 2 or No. 3 carcasses is greater than that of handling No. 1 carcasses, due to the necessity for longer refrigeration, and greater effort in selling.



General view of left side carcass—one without number is No. 8. No. 9 is an overdone Shorthorn, killed for demonstration purposes.

## THE MEAT DEMONSTRATION.

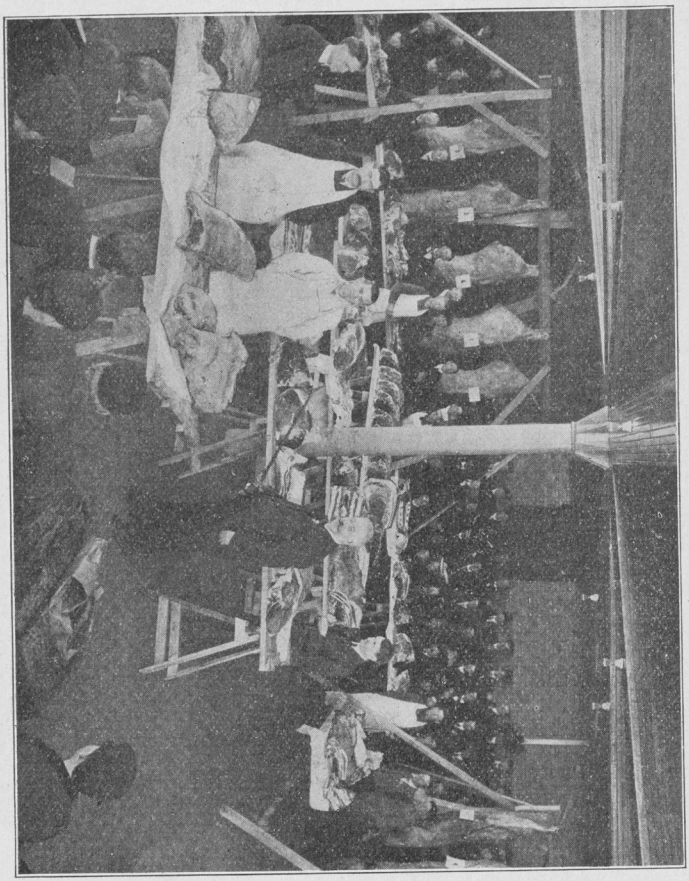
In the following pages illustrations of the various carcass cuts, and comments on the same by Mr. Gosling, are given.




Left Half of Carcasses.

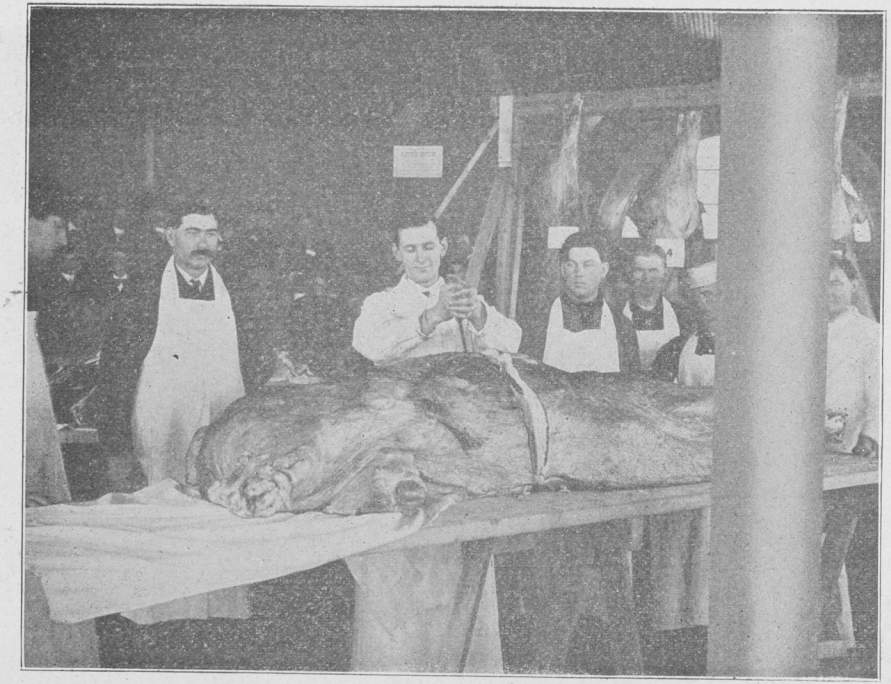
"Carcasses 1, 6, 7, are choice carcasses or No. 1's; carcasses Nos. 3, 4, and 8, will grade as very good No. 2's, or second class beef, and Nos. 2 and 5 are of third class grade—No. 3's. Both these are from dairy type steers, and are simply lacking in flesh elements.

The color of the flesh should be of a pale red. It is fairly good in all of the carcasses. The external color (or color of the fat), was good in all except No. 2. This animal killed very yellow. The other Jersey killed unusually white. Ordinarily Jerseys, or animals carrying any considerable amount of Jersey blood, kill very yellow."

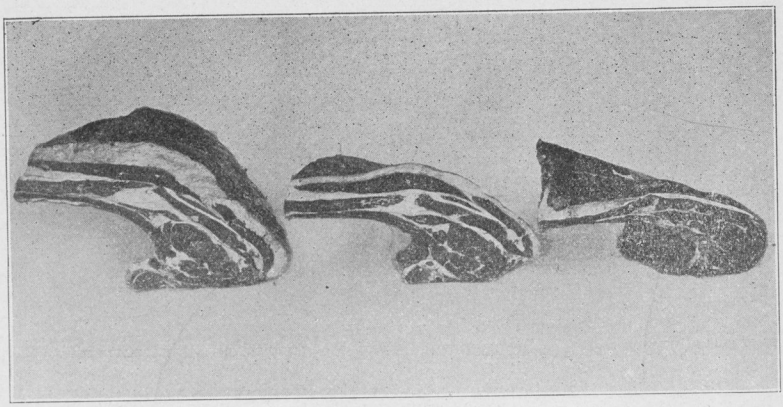


New Pavilion—Where the Demonstration Was Held.

"The early maturity of the dairy type is evidenced by the hardness of the splints in the backbone. These become hard clear out to the tips at maturity; and they afford quite a fair general guide as to the age of the animal killed. The ends are cartilaginous in young animals; and they are much more so in these beef type steers than in the dairy type steers, despite the fact that their ages are nearly the same."

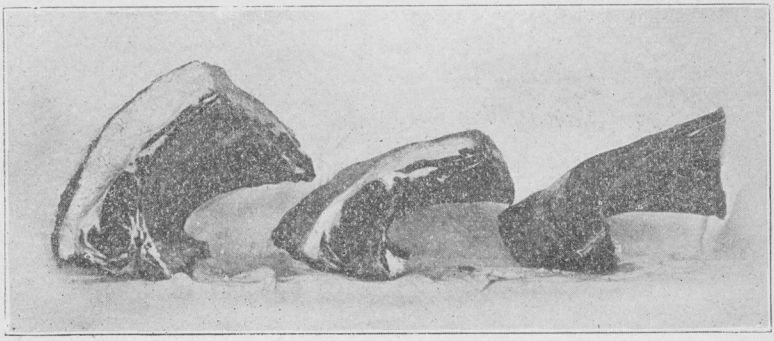


Cutting a Side of Beef.

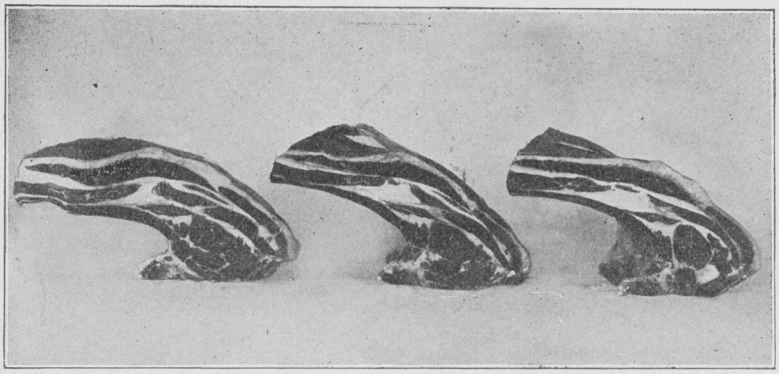


Prime Ribs in Order, 9, 7, 10.

"This illustrates very clearly the difference between folly and common sense. No. 9 is from a Shorthorn steer that had been a prize winner at the leading shows. He was carried a year too long to kill out a profitable carcass—has an excess of outside fat. No. 7 has more of the good red flesh element, without any excess of fat which would need to be trimmed off—this cut is from the choicest carcass. No. 10 is from a lean animal (a "canner"). This cut, while rich in flesh element (and by this we mean muscle or lean meat), is so lacking in fat that it would shrivel and dry up when roasted, thus becoming dry and tough."

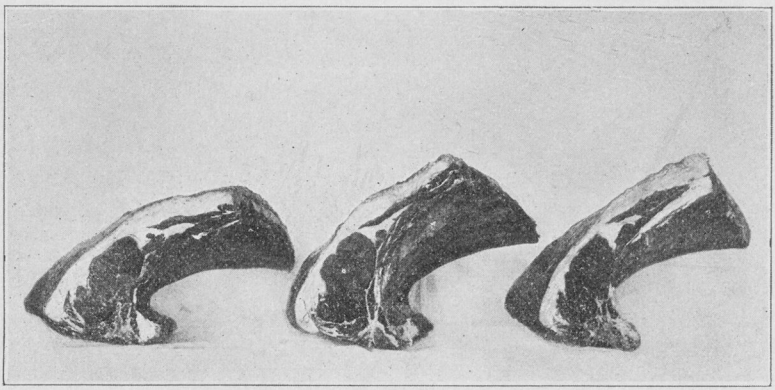


Back Ribs of 9, 7 10.



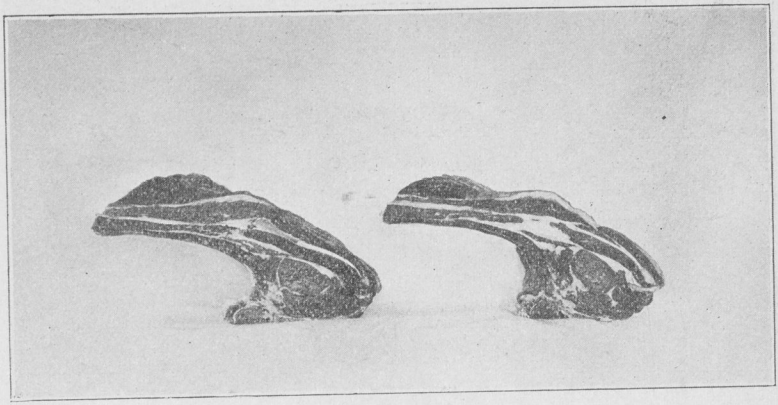
Prime Ribs in order, 7, 6, 1. Parted at eighth rib, just touching shoulder; a regulation market cut.

"This shows the prime ribs from the three choice carcasses; and while the size is somewhat reduced because of the three ribs on one photograph, the differences are quite visible. No. 7 shows superb depth of flesh, and does not fail in depth of flesh toward the end of the rib cut, so rapidly as the other two prime ribs. The deep full covering of flesh and smoothness shown in No. 7 illustrate what choice ribs of beef should be."



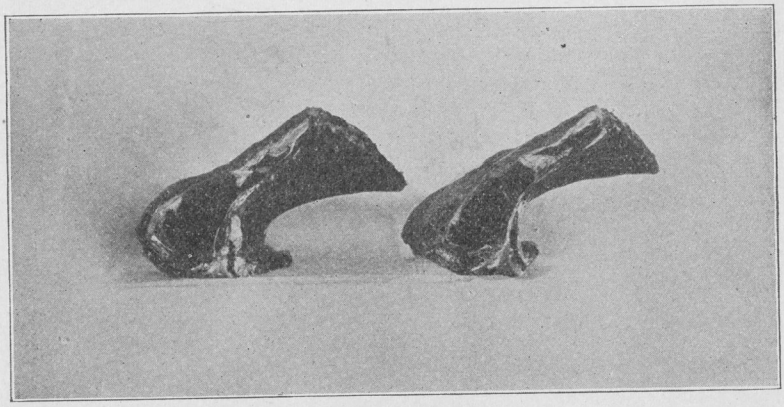
Back Ribs of 7, 6, 1.

"Back ribs are simply the reverse end of the prime ribs or fore ribs shown above."



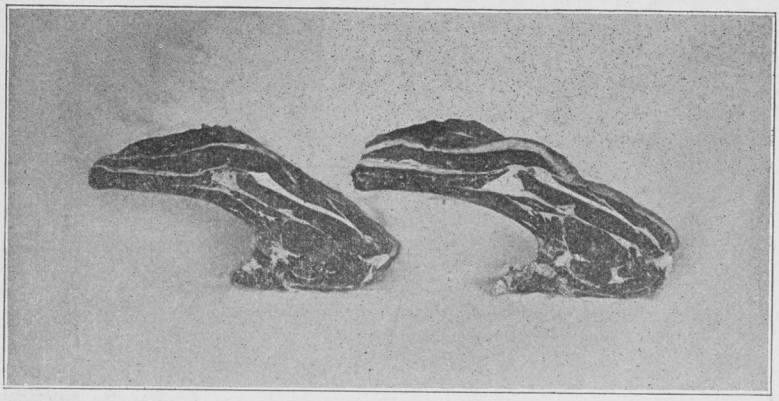
Prime Ribs of 2, 3.

"The fore ribs from the dairy type steers are light and shelly in character. They also lack a distribution of fat through the lean, or in other words, lack marbling; and the color of the meat is somewhat dark; this however, will not show in a cut. These are from the Jersey steers."



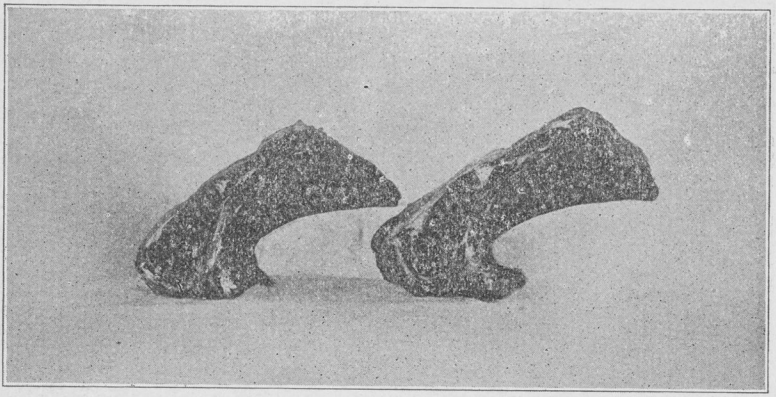
Back Ribs of 2, 3.

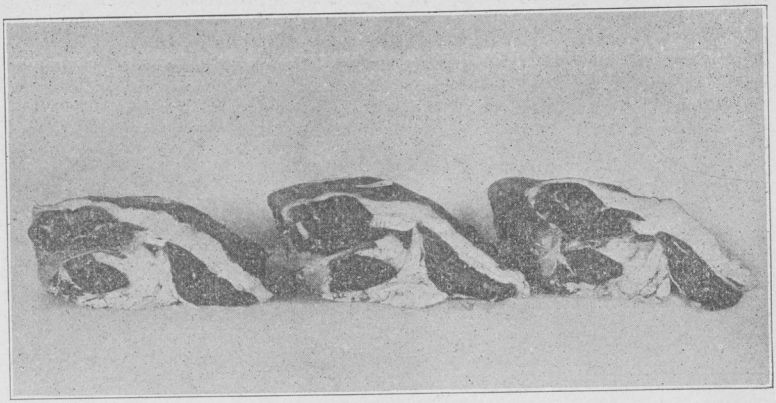
"Reverse end of the preceding cuts."



Fore Ribs 5, 4

"Dairy type—Holstein ribs. Lack depth and are very irregular and rough."





Loin parted just at hip bone, where tenderloin is biggest, known as short loin 1, 7, 6.

"This cut shows the rear end of the short loin from which the porterhouse cuts come. Both No. 1 and No. 6 show more outside fat than No. 7, and do not show the depth of flesh element. The tenderloin is the large muscle lying beneath the bone of the loin—that flesh which appears in the lower left hand of each loin. The tenderloin is a tenderer cut than the other cuts of the loin, but possesses less flavor than the other muscles."

Round of 9, 10.

"Neither of these rounds is from any of the steers in the experiment, but they are used simply to show the great difference in flesh element. The round on the left—No. 9—appears the larger, but it really has much less thickness of flesh element than the smaller round —No. 10—which came from the lean animal. The latter, however, while desirable in flesh element, is not fat enough to make desirable beef steaks; it lacks marbling, and would become dry and tough when cooked."

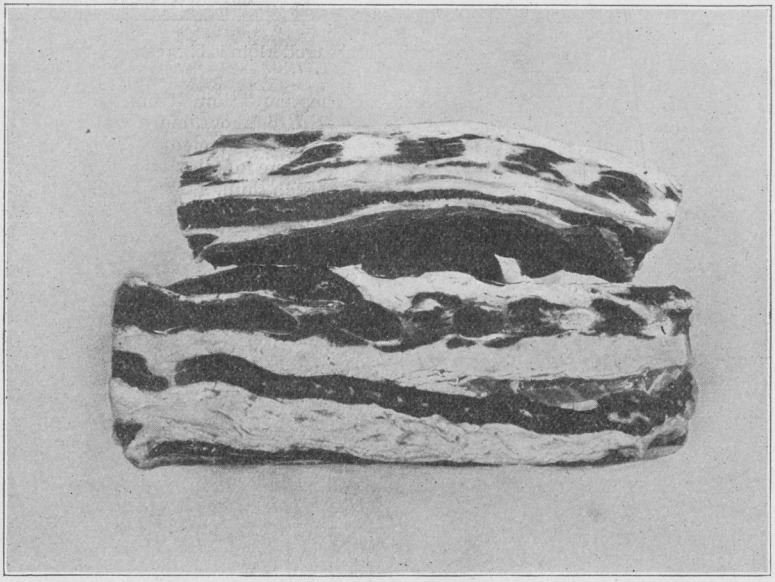
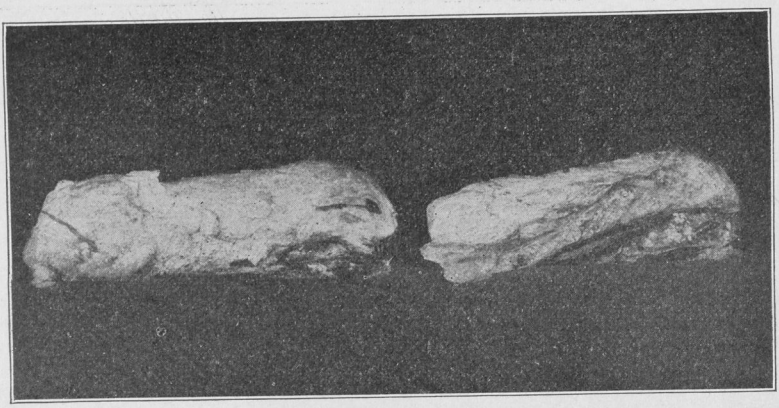


Plate of 4-9.

"This shows why the plate cuts are less valuable—the flesh elements are too thin, and constitute too small a proportion of the total weight, to make cuts from the plate, navel, or brisket desirable for family use."



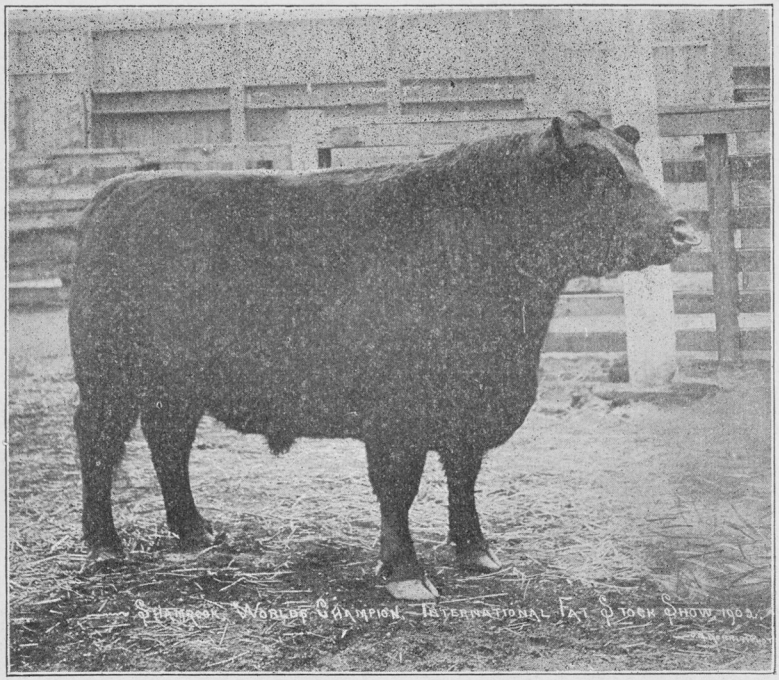
Kidney Fat of 3, 7.

"Kidney fat is a cheap product, and while it counts in dressing per cent, it only serves to reduce the value of the carcass where it is present to excess. Reference to the tables shows that No. 3 possessed 21 pounds of this cheap product, while No. 7 had but 11.5 pounds, despite his greater weight. This confirms the contention often made, that steers of dairy type carry an unnecessary amount of waste fat."

Choice Rib Roast.

"Prime meats require from three to four weeks ageing in refrigerators to arrive at their best. The cut shows a very choice roast, well ripened by refrigeration. It illustrates the proper proportion of fat and lean, and shows beautiful distribution of fat veins through the lean meat, giving the appearance known as "marbling," which is found only in meat from well bred and properly finished animals."

Selected in Kansas City by Mr. Gosling to show what a roast should be.




Shamrock—Grand Champion Steer at the International 1902. Illustrates the profitable and desirable beef type. Fed and exhibited by Iowa Agricultural College.

A short wide head; short neck smoothly blended into shoulder; broad, compact, and well covered shoulders; wide arching ribs; broad loin; deep body, and long, wide hindquarters, well filled out in rump, thighs and twist; a deep even covering of *flesh—lean meat—muscle*—with just enough fat to marble the flesh nicely and to give it a smooth, bright external appearance; fine bone, evidenced in refinement of head and limbs; pliable skin of medium thickness, with soft hair; a reasonable trimness of body to give good dressing percentage—these are the points that make up the profitable steer for feeder or butcher; and these points must largely govern the breeder in the production of beef animals.

It will be noted that this feeding experiment was conducted at a financial loss. The explanation of this lies in the fact that the animals were not allowed on pasture, hence feed cost is at a maximum. They were also fed for a full year—too long a feed-

ing period for profit, particularly in the case of the dairy type steers. Furthermore, they could not be sold to advantage nor for the full price they would have brought on the open market, because it was essential that we should slaughter the animals and cut up the carcasses for examination. This necessarily reduced the value of the carcasses to the purchasers, and consequently the selling price.

## CONCLUSIONS,

Dairy type steers show a considerably higher percentage of offal and a lower dressing percentage.

Dairy type steers carry higher percentage of fat on internal organs, thereby increasing the total weight of cheap parts.

Beef type steers carry higher percentage of valuable cuts.

Beef type steers furnish heavier, thicker cuts; they are more evenly and neatly covered with outside fat, show superior marbling in flesh, are of a clearer white color in fat, and a brighter red in the lean meat; but there is little difference in fineness of grain.

The low price paid for dairy steers may be due partially to prejudice, and to the greater expense of carrying and selling the low grade carcasses; but it is chiefly due to an actual inferiority in the carcasses.

It is neither profitable nor desirable to feed steers of dairy type for beef purposes. They are unsatisfactory to the consumer because they do not furnish thick and well marbled cuts; they are unsatisfactory to the butcher because they furnish low-grade carcasses which are difficult to dispose of, and they are decidedly unsatisfactory to the feeder, because they yield him little or no profit, and both breeder and feeder waste their time in producing such a type of steer for beef purposes.

## ERRATA

The following description should appear under the cut at bottom of page 366:

Back Ribs, parted just forward of loin, of 5, 4.

The lower right hand line of page 350 should read:

Hide..... 62.5